

SALVATION ARMY DIVISION CAMP AND RETREAT CENTER

APPENDIX J

Water System Evaluation

Prepared by the Ramona Municipal Water District

August 18, 2009



RAMONA MUNICIPAL WATER DISTRICT

105 Earham Street
Ramona, California 92065-1599

Telephone:
(760) 789-1330

August 18, 2009

JO 10022

Bill Moser
4740 Ruffner Street
San Diego, CA 92111

Subject: Salvation Army Water Requirements

Dear Mr. Moser:

In response to our meeting of July 23, 2009 (Meeting), we have reviewed the requirements for the Salvation Army project and have made the following assessments:

10-inch Pipeline Construction

Staff has reviewed the water model and determined that the flow rate to the proposed water storage tank is approximately 360 gallons per minute through the 6-inch main in Mussey Grade Road. Based on an anticipated 300,000 gallons being used in a 2 hour fire event, the anticipated time to refill the tank is 13.9 hours. The Ramona Municipal Water District (RMWD) considers this timeframe to be acceptable and agrees to withdrawal the requirement to construct the portion of the 10-inch main in Mussey Grade Road from the water system evaluation (WSE) dated July 7, 2009. The onsite, 7,296-foot, 10-inch main is still required on the discharge side of the water storage tank.

Connection Fees

The RMWD capital improvement fees for the project are currently \$7,750 per EDU and estimated to be \$795,925 for 102.7 EDUs. The San Diego County Water Authority fees vary depending on the meter size and the number of meters required for the project. The actual connection fees will be calculated once plumbing and irrigation plans become available.

Water Storage Tank

As discussed in the Meeting, the RMWD would normally charge a mitigation fee of \$5,300 per equivalent dwelling unit (EDU) for developments that did not construct a water storage tank. Based on the EDUs estimated for your project, the resulting mitigation fee would be in excess of \$544,000. This should be considered a credit that was applied to your conditions in your WSE since water and fire storage is required before the development could be constructed.

Based on the diameter and height of the proposed storage tank listed in your environmental impact report (EIR), the RMWD has calculated the respective volumes and estimated cost allocation between the Salvation Army and the RMWD in the table on the adjacent page. The actual costs may vary once the tank goes out to bid. The portion of the tank that RMWD participates in shall be bid as an alternative bid item for raising the tank by the additional 5-feet mentioned in your EIR. Funding of the RMWD portion of the tank may not be available at the time that the 23-foot high

tank is constructed. The RMWD will make no guarantees that it will participate in the construction of the additional 5-feet once the alternative bids are received, but the developer will be responsible for providing a design that accommodates a 23-foot high tank with the option of adding an additional 5-feet to the tank in the future or concurrent with the tank being constructed that is sized for just the Salvation Army project.

Salvation Army Tank Components

Tank Diameter	70.00	ft
Tank Cross Sectional Area	3848.45	ft ²
SA Height	23.00	ft
SA Volume (Gal)	662133.49	gal
Ult. Height	28.00	ft
Ult. Volume (Gal)	806075.56	gal
RMWD Height	5.00	ft
RMWD Volume (Gal)	143942.06	gal

SA Cost per Gallon ₁	\$1.00
SA Cost	\$662,133.49
Assumed RMWD Cost per Gallon ₁	\$0.25
RMWD Cost	\$35,985.52

1 - Cost assumes that RMWD's share of the tank is only associated with the additional steel and appurtenances to raise the tank by 5-feet. The cost for the roof, foundation, and grading are included in the developer's share of the tank.

If there are any questions, please feel free to contact Tim Stanton or myself at 760-789-1330.

Sincerely,



Phillip Dauben, PE
Civil Engineer



RAMONA MUNICIPAL WATER DISTRICT

105 Earlham Street
Ramona, California 92065-1599

Telephone:
(760) 789-1330

July 14, 2009

J.O. 10022

Richard Chalk
The Salvation Army
2320 Fifth Avenue
San Diego, CA 92101

Re: Water System Evaluation for the Salvation Army Campground

Dear Mr. Chalk,

The Ramona Municipal Water District (RMWD) has completed its system evaluation of the impacts your connection to the RMWD water system. The evaluation has made the following determinations:

RMWD Water System:

1. Proceed with the facilities identified in Alternative 1 and the proposed 0.80 MG tank. The applicant will be required to have a civil engineer to prepare design drawings and make applicable deposits for plan check (estimated at \$10,000).
2. Construct the facilities identified in Alternative 1 at an estimated cost of \$1,737,480.
3. Construct a 0.80 MG water storage tank at an estimated cost of \$1,200,000.
4. Pay RMWD water capital improvement fees estimated at \$795,925 on 102.7 EDUs. Actual fees will be calculated once plans have been prepared and a preliminary application for water service is made.
5. Pay SDCWA capital improvement fees for each meter purchased. Fees, meter size, and number of meters will be determined once plans have been prepared and a preliminary application for water service is made.
6. Provide a 20-foot public easement to the RMWD for all areas where water facilities are located outside of the public right-of-way.
7. Provide a fee title site for the water storage tank to the RMWD.
8. Combine parcels into one APN for each meter assigned to it or purchase separate meters for each parcel and plumb accordingly.
9. Annex portions of the property that require water service into the RMWD and SDCWA boundaries.
10. Make an application for a reimbursement agreement to recover costs for over-sizing the storage tank for other developments in the area.
11. Execute service application. Fees and charges at the time of application may differ from those listed above.
12. Conditions are subject to change based on code and system changes. In any case, these conditions shall be re-evaluated after two years.

If you have any questions please call 760-788-2260 to schedule a meeting. Appointments will be made on a

first come, first serve basis, and will be scheduled a minimum of 1 week from the time the request is made.

Sincerely,

A handwritten signature in black ink that reads "Phillip Dauben". The signature is written in a cursive, flowing style.

Phillip Dauben, PE
Civil Engineer

Cc: file – JO 10022
Private Project Notebook

WATER SYSTEM EVALUATION

APNs: 322-030-02, 10, 322-031-01, 02, 05, 322-060-01, 08, 09, 10,
322-061-03, 327-011-29 (806.62 acres)

Mussey Grade Road

Applicant: Salvation Army

1.0 PURPOSE

The purpose of this report is to document the evaluation of the facilities required to supply potable water service to APNs 322-030-10, 322-031-02, 05, 322-060-08, 10, and 327-011-29. APN 322-031-02 is outside of the Ramona Municipal Water District (RMWD) boundary and must annex in before water service can be provided. APNs 322-030-02, 322-031-01, 322-060-01, 09, and 322-061-03 are all outside of the RMWD boundary, but are not anticipated to require water service. The overall project area is 806.62 acres.

The project proposes to construct a campground with the following facilities and estimated demands.

Domestic Water

Facility	Units at Buildout	Water Consumption per Unit	Demand (GPD)
Children's campground (including dining)	720	50	36,000
Staff Housing	28	100	2,800
Pool	1	5000	5,000

43,800

Gallons per Equivalent

Dwelling Unit (EDU)= 554

EDUs = 79.1

Irrigation Water

Gallons per year=	4,781,908
Gallons per day=	13,101
Gallons per Equivalent Dwelling Unit=	554

EDUs = 23.6

Total EDUs = 102.7

The equivalent dwelling units (EDUs) are estimated to be 102.7 based on a flow rate of 56,901 gallons per day (gpd), but actual EDUs will be calculated according to the RMWD Legislative Code once plumbing and landscaping plans are available.

This study will examine the options for service to the property based on the criteria outlined in Section 4, "System Evaluation and Future Facilities".

2.0 SAN DIEGO COUNTY 2020 PLAN FOR RAMONA

The project is zoned as Rural Lands (RL-40) with 1 dwelling unit per 40 acres according to the Draft 2020 San Diego County General Plan. The surrounding area is zoned as shown on Exhibit B.

3.0 EXISTING FACILITIES AND CONDITIONS

Existing water mains are shown on the attached map, Exhibit C, in blue. There are existing 6-inch mains on Mussey Grade Road and Laurel Lane.

There is no existing operational storage identified for this zone but water is supplied from the 1800-foot Mount Woodson Terminal Storage tank (10 MG). A new storage tank will be required for the Salvation Army project at an elevation of 1,665-feet. The elevation of the subject parcel where the campground will be located varies between approximately 1,560-feet and 1,440 resulting in static water pressures of 45 psi and 97.4 psi. Portions of the ultimate water pressure values do not fall within the district's standard planning criteria of a minimum of 65 psi and maximum of 200 psi, but are greater than the 20 psi at the meter required by the Legislative Code. Portions of the project may require private booster pumps if water pressure is not satisfactory to the owner.

There are no reimbursement agreements or mitigation fees for water facilities in the immediate vicinity of the project.

4.0 SYSTEM EVALUATION AND FUTURE FACILITIES

Prior to determining specific requirements for the project the service area was evaluated to determine the potential future development and to assess the best course of future service expansion.

The following criteria were used in evaluating the system and selecting the preferred alternative for the project.

1. Conformance to Ramona Community Plan was considered but is the owner's responsibility to comply.
2. Providing an adequate system for serving all users and potential users within the District in an orderly, efficient, and economical manner.
3. Providing a system that allows for efficient and economical maintenance.
4. Extending public water lines across the entire frontage of a parcel and easement.
5. Whether public water lines will be required to serve interior of subdivision.
6. Public water system requires public fire hydrants.
7. Private fire hydrants shall have backflow preventors.
8. If more than 4 parcels may be served now or in the future, a public water system is required versus allowing private laterals. If lien and easements are not provided, a Board approval is required.
9. Looping to avoid dead end water lines improves water quality and reliable fire protection water supply.
10. Improvements may be needed in offsite areas of the project's service area, and benefit projects including available water storage that meets District design standards.
11. Planned location of future water and sewer lines so that the appropriate easements may be requested and dedicated.
12. Extension of untreated or recycled water lines may be required.
13. All public lines shall be at least 8-inch diameter or sized for potential future development.
14. Ability to properly place water meters along the frontage of the property.
15. Immediate cost to connect by applicant.
16. Feasibility of alignment considering surrounding topography.
17. Individual laterals are not connected to transmission mains.

5.0 SYSTEM EVALUATION

Ultimate System (Exhibit D)

The ultimate system is shown in Exhibit D. New 10-inch mains would extend down Mussey Grade Road to feed the new tank at the 1665-elevation. With the steep drop in topography from Dos Picos Park road, there is adequate water pressure with a 10-inch main along the alignment to meet a 2,500 gallon per minute fire flow with a residual pressure of 73.4 psi at an elevation of 1,280-feet. An 8-inch main from Mussey Grade Road will feed the tank located on the Salvation Army site. Downstream of the tank, a 10-inch main on Mussey Grade road will be required since pressure values cannot be met for maximum daily demands plus fire flows with an 8-inch main. Pipe velocity during fire flows for the 10-inch main are 10.3 feet per second.

The ultimate system was selected based on being able to meet the criteria listed above, to provide an efficient and orderly development of the distribution system, and the ability to meet the needs of existing and future customers in the vicinity.

PIPELINES

Alternative 1 (Exhibit E)

Alternative 1 consists of a 4,242-foot, 10-inch, main from Dos Picos Park Road to the entrance of the Salvation Army Campground. A 7,296-foot, 8-inch, main would extend from the 10-inch main to fill the proposed storage tank. A parallel 10-inch distribution main will provide water service to the campground and connect back into the 6-inch main on Mussey Grade Road. Since landscaped areas will be greater than 5,000 square feet, separate meters will be required for irrigation and domestic services according to California Water Code 535. Backflow preventers will be required on the fire and irrigation water lines. The estimated cost of this alternative is \$1,737,480. A public easement would be required for all portions of the alignment located outside of the public right-of-way.

The development will require an estimated 102.7 EDUs associated with domestic and landscape areas. The cost per EDU is \$7,750 (not including installation or application fees) resulting in capital improvement (CIP) fees of \$795,925 for 102.7 EDUs, but the applicant will be subject to the fees in effect at the time of application for water service and actual EDUs calculated when plans are available. Without knowing the location, size and quantity of meters required for each area of the campground, the San Diego County Water Authority (SDCWA) CIP fees cannot be calculated, but the rate table below shows the fees currently in effect for each meter size. Meters will be sized according to the RMWD Legislative Code.

SDCWA Meter Fees

Size, Inches	Factor	System Capacity Charge	Water Treatment Capacity charge
< 1	1	\$4,326	\$166
1	1.6	\$6,922	\$266
1.5	3	\$12,978	\$498
2	5.2	\$22,495	\$863
3	9.6	\$41,530	\$1,594
4	16.4	\$70,946	\$2,722
6	30	\$129,780	\$4,980
8	52	\$224,952	\$8,632

Required Pipeline Facilities

Alternative 1 was the only alternative identified and is expands upon the previous evaluations completed for the project.

The project currently spans multiple parcels. The RMWD Legislative Code does not allow water from a meter assigned to one Assessor's Parcel Number (APN) to be used any other APN. The owner will be required to combine the APNs into one or purchase separate meters for each parcel. In that scenario, buildings and landscaping would need to be plumbed to avoid crossing parcel lines. APN 322-031-02 is located outside of the RMWD boundary and is not located in any other water district. Before water service can be provided to that portion of the campground, the Salvation Army will be required to annex into the RMWD and SDCWA. The developer will need to make appropriate deposits and fees for the RMWD to approach LAFCO to adjust its sphere of influence boundary to include the subject parcel.

WATER STORAGE

The January 2002 water system evaluation for the Salvation Army identified a 1.0 million gallon tank as being necessary to meet ultimate demands. Since then, revised 2020 planning data has become available as well as data for topographical constraints that would limit development on steep slopes. A reevaluation of the storage requirements was requested by the developer's engineer in a letter dated May 28, 2009. Excluding the EDUs associated with proposed Salvation Army development, the table below summarizes the number of ultimate parcels that may develop (assuming 1 EDU per parcel) from the original 2002 study, RMWD's 2007 storage evaluation for the zone, the developer's engineer, and the RWMD's re-evaluation completed as a part of this study:

Study	Salvation Army EDUs	EDUs from others in Zone	% Reduced based on historical growth	EDUS in storage zone
RMWD 2002 Evaluation ₁	-	-	0%	695
RMWD 2007 Evaluation	202	99	80%	240.8
Nasland 2009 Evaluation ₂	102.7	175	0%	277.7
RMWD 2009 Evaluation	102.7	173	90%	248.1

1 - Assumed 554 gallons per day per EDU and evaluation's conclusion of 385,240 gallons per day for the zone

2 - Data from Nasland did not include EDUs associated with Salvation Army Campground. Assumed 102.7 EDUs from water demand calculations.

Build-out of the Salvation Army Storage zone is projected to require 0.8 million gallons (MG) of operational storage (see Exhibit F). Currently, the existing customers connected in this zone require approximately 0.53 MG of storage. Since no storage exists for the zone, the developer will be required to construct a 0.8 MG storage tank at an estimated cost of \$1,200,000. The tank site shall be granted to the RMWD in fee title. A reimbursement agreement may be executed so that when other developments occur in the zone, the RMWD will collect a pro-rata share based on actual construction costs of the tank, and reimburse the developer. The calculation of the storage required is listed in the adjacent table.

					Storage Components (MG) - 2020			
Ultimate EDUs Based On GP 2020 Zoning	Adjust For Zoning Vs Actual Develop	Adjusted EDUs	2020 Average Daily Flow (MGD)	2020 MD Flow (2.8 Pf) (MGD)	Operating Storage (0.3 *MD)	Emergency Reserve (1 * MD)	Fire Storage (2500 gpm X 2 Hrs)	2020 Total Storage (MG)
275	90%	248	0.137	0.38	0.12	0.38	0.3	0.80

The parcel falls within the Mount Woodson Terminal Storage boundary (See Exhibit G). At this time there is 10 MG in the Mount Woodson Reservoir. At ultimate build out, the terminal storage zone will not have adequate storage, but existing funding from connection fees is projected to be available to cover these costs.

Photographs

Photograph #1



Photograph #2



Photograph #3



6.0 FACILITIES REQUIRED TO SERVE APNs 322-030-10, 322-031-02, 05, 322-060-08, 10, and 327-011-29.

The applicant for water service is required to:

1. Proceed with the facilities identified in Alternative 1 and the proposed 0.80 MG tank. The applicant will be required to have a civil engineer to prepare design drawings and make applicable deposits for plan check (estimated at \$10,000).
2. Construct the facilities identified in Alternative 1 at an estimated cost of \$1,737,480.
3. Construct a 0.80 MG water storage tank at an estimated cost of \$1,200,000.
4. Pay RMWD water capital improvement fees estimated at \$795,925 on 102.7 EDUs. Actual fees will be calculated once plans have been prepared and a preliminary application for water service is made.
5. Pay SDCWA capital improvement fees for each meter purchased. Fees, meter size, and number of meters will be determined once plans have been prepared and a preliminary application for water service is made.
6. Provide a 20-foot public easement to the RMWD for all areas where water facilities are located outside of the public right-of-way.
7. Provide a fee title site for the water storage tank to the RMWD.
8. Combine parcels into one APN for each meter assigned to it or purchase separate meters for each parcel and plumb accordingly.
9. Annex portions of the property that require water service into the RMWD and SDCWA boundaries.
10. Make an application for a reimbursement agreement to recover costs for over-sizing the storage tank for other developments in the area.
11. Execute service application. Fees and charges at the time of application may differ from those listed above.
12. Conditions are subject to change based on code and system changes. In any case, these conditions shall be re-evaluated after two years.

Prepared by:

Phillip Dauben
Phillip Dauben
Civil Engineer

7/14/09
Date

Approved by:

Tim Stanton, PE
Tim Stanton, PE
District Engineer

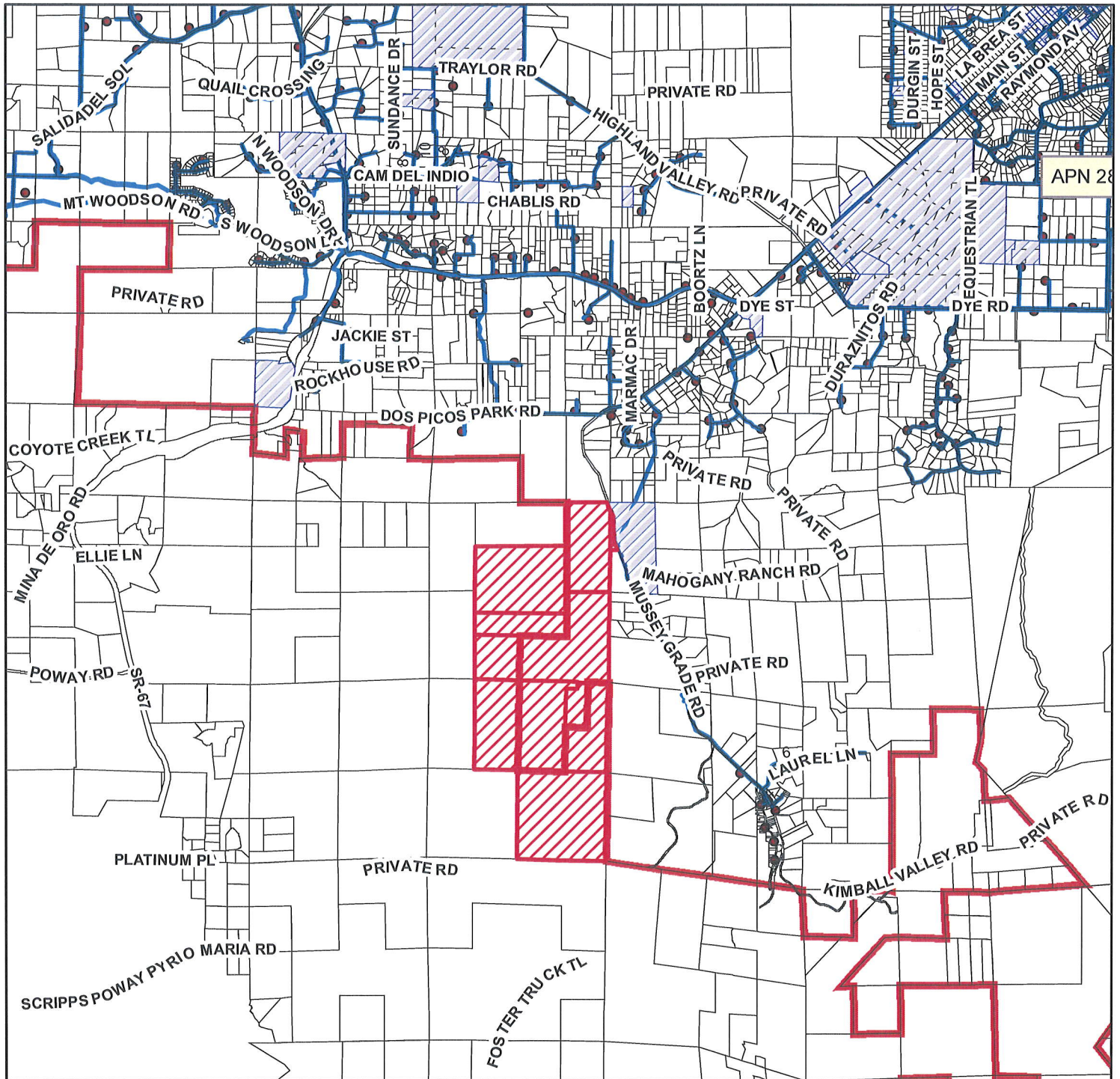
7-13-09
Date

Approved by:

John Brean
John Brean
Water Operations Superintendant

7-10-09
Date

EXHIBIT A
Vicinity Map
APN: 32203002, 10, 32203101, 02, 05, 32206001, 08, 09, 10,
32206103, 32701129 (806.62 acres)
Mussey Grade Road
Applicant: Salvation Army

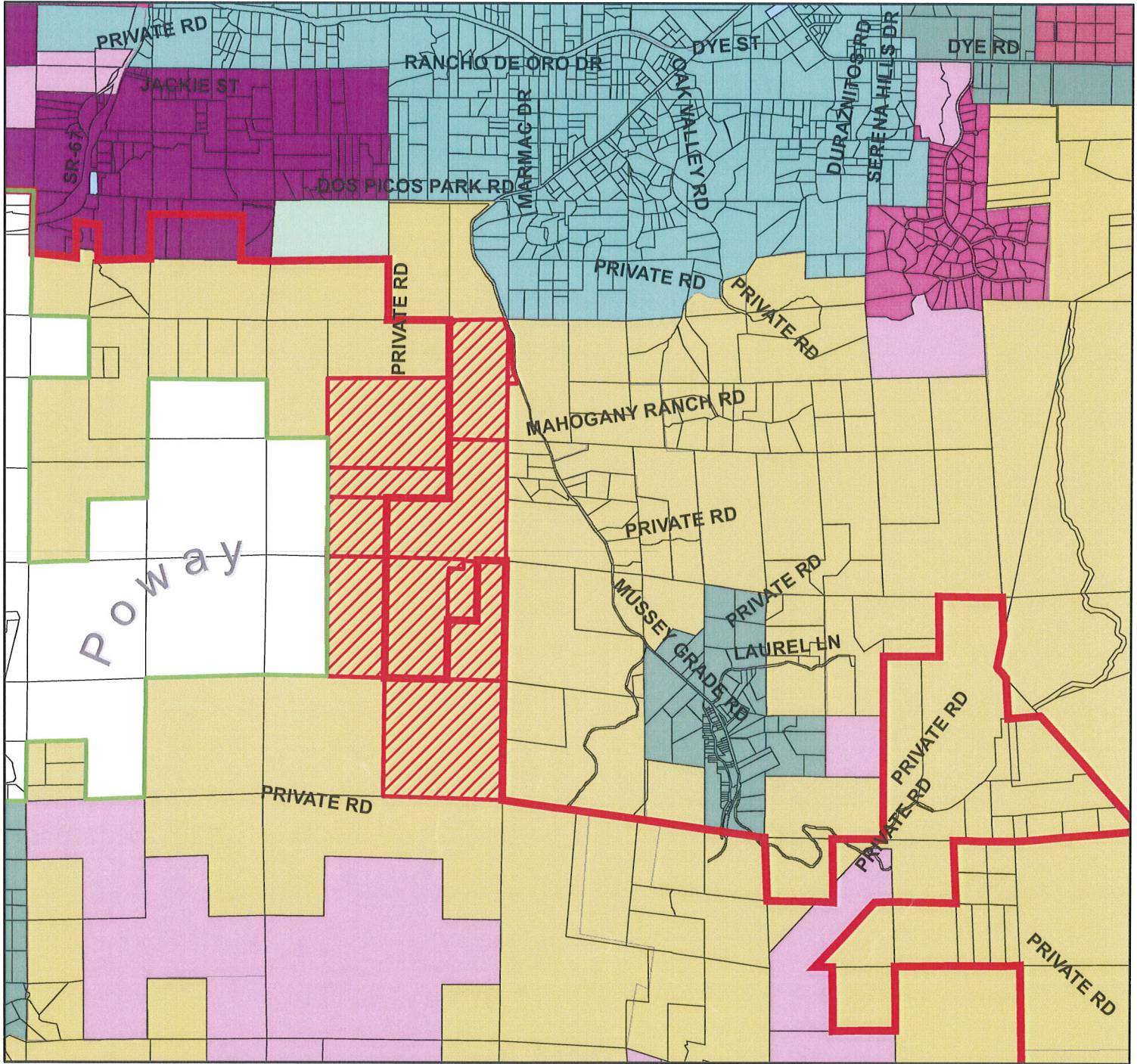


Legend

- RMWD Boundary
- Subject_Parcel
- Water System
- Fire_Hydrants
- Private_Projects_cjd

0 2,000 4,000 8,000
 Feet

EXHIBIT B-1
Zoning Map
APN: 32203002, 10, 32203101, 02, 05, 32206001, 08, 09, 10,
32206103, 32701129 (806.62 acres)
Mussey Grade Road
Applicant: Salvation Army



Legend

Municipal Boundaries GP_2020

Subject_Parcels

RMWD Boundary

DESC

OPEN SPACE (CONSERVATION) OSC

OPEN SPACE (RECREATION) OSR

PUBLIC/SEMI-PUBLIC FACILITIES PF

RURAL LANDS (RL-20) 1.0 / 20

RURAL LANDS (RL-40) 1.0 / 40

SEMI-RURAL RESIDENTIAL (SR-10) 1.0 / 10

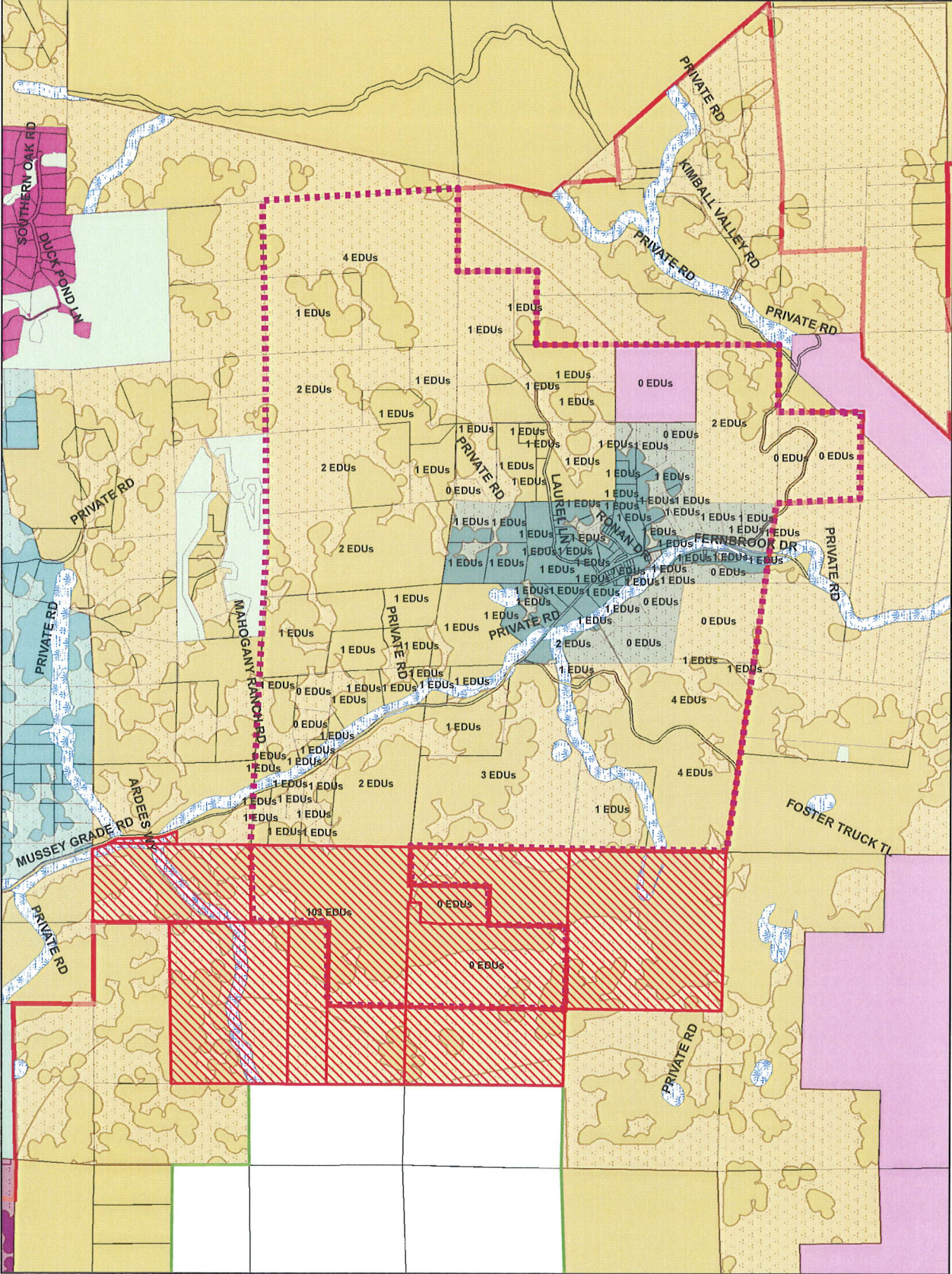
SEMI-RURAL RESIDENTIAL (SR-2) 1.0 / 2

SEMI-RURAL RESIDENTIAL (SR-4) 1.0 / 4

SPECIFIC PLAN AREA



EXHIBIT B-2
Zoning Map - Mussey Grade Road
APN: 32203002, 10, 32203101, 02, 05, 32206001, 08, 09, 10,
32206103, 32701129 (806.62 acres)
Applicant: Salvation Army



Legend

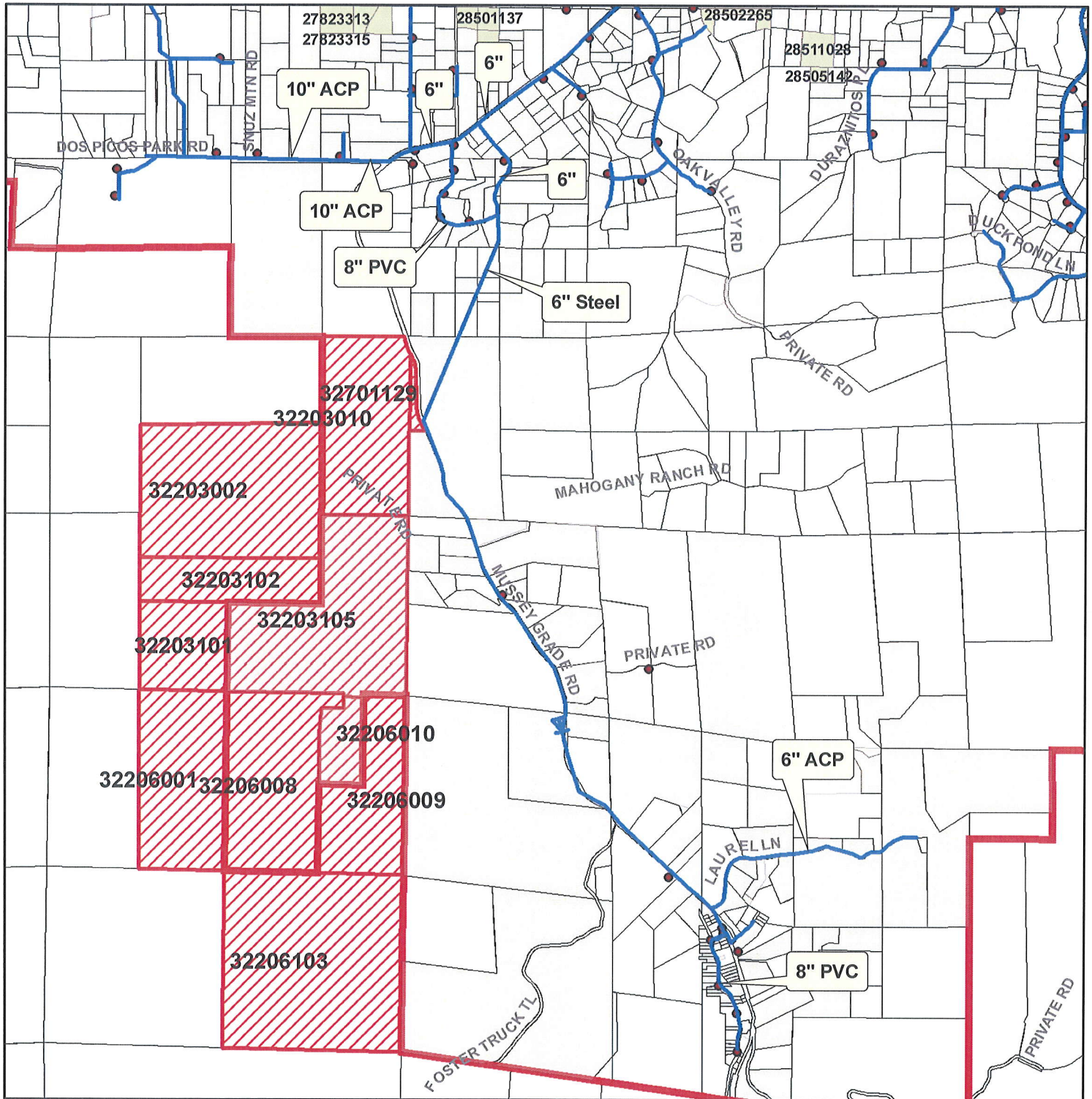
- Subject_Parcel
- Salvation_Army_Zone
- Municipal_Boundaries
- Easement_Open_Space
- Wetlands that are fully constrained
- Partially constrains/limits urban residential development (lowers allowable housing unit densities)
- RMWD Boundary

GP_2020

- OPEN SPACE (CONSERVATION) OSC
- OPEN SPACE (RECREATION) OSR
- RURAL LANDS (RL-20) 1.0 / 20
- RURAL LANDS (RL-40) 1.0 / 40
- SEMI-RURAL RESIDENTIAL (SR-10) 1.0 / 10
- SEMI-RURAL RESIDENTIAL (SR-2) 1.0 / 2
- SPECIFIC PLAN AREA

0 750 1,500 3,000 Feet

EXHIBIT C
Existing Facilities
APN: 32203002, 10, 32203101, 02, 05, 32206001, 08, 09, 10,
32206103, 32701129 (806.62 acres)
Applicant: Salvation Army

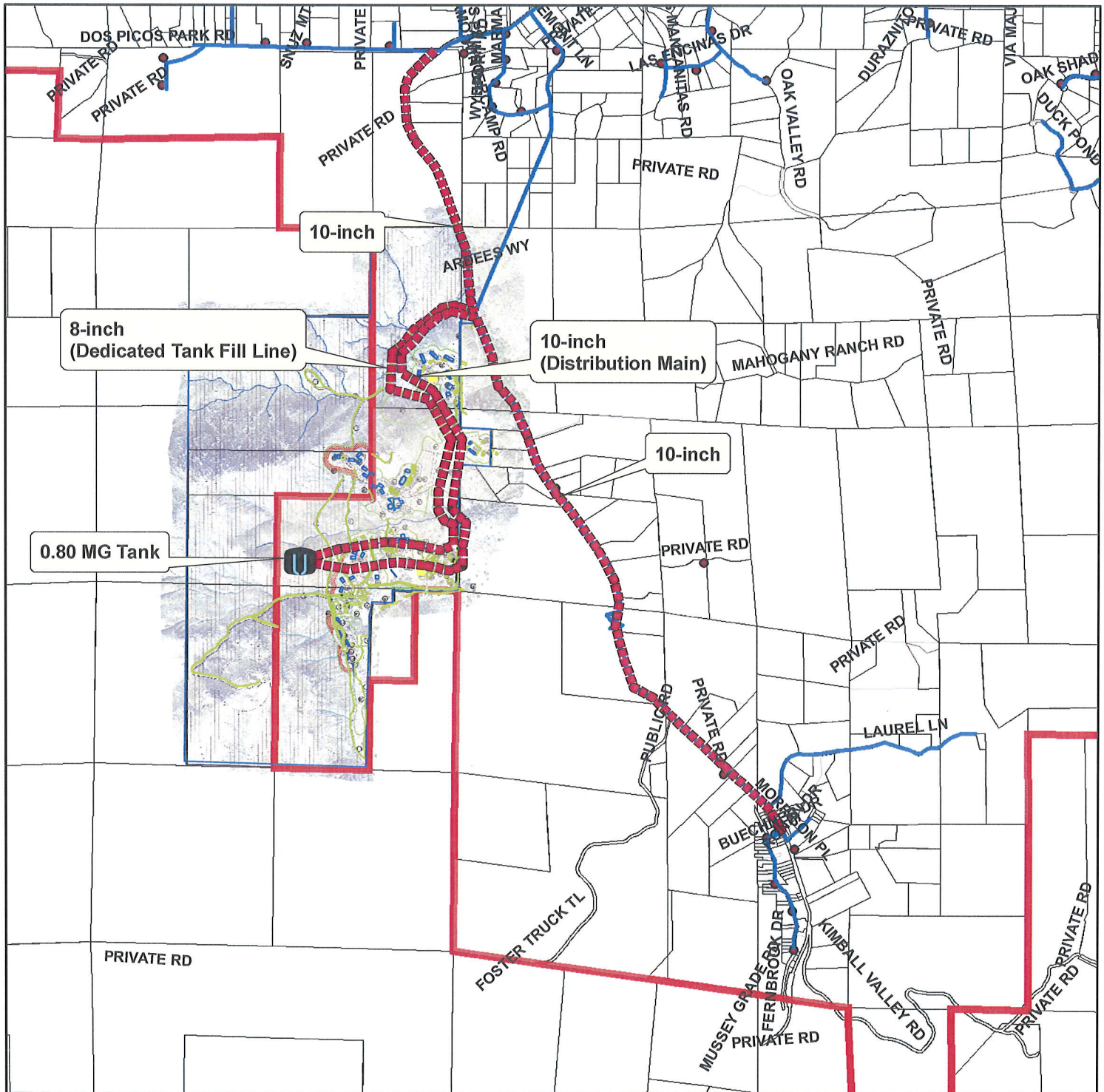


Legend

- RMWD Boundary
- Subject_Parcel
- Water System
- Fire_Hydrants
- All Water Meters
- Lien Contracts

0 1,000 2,000 4,000
 Feet

EXHIBIT D
Ultimate Facilities
APN: 32203002, 10, 32203101, 02, 05, 32206001, 08, 09, 10,
32206103, 32701129 (806.62 acres)
Mussey Grade Road
Applicant: Salvation Army

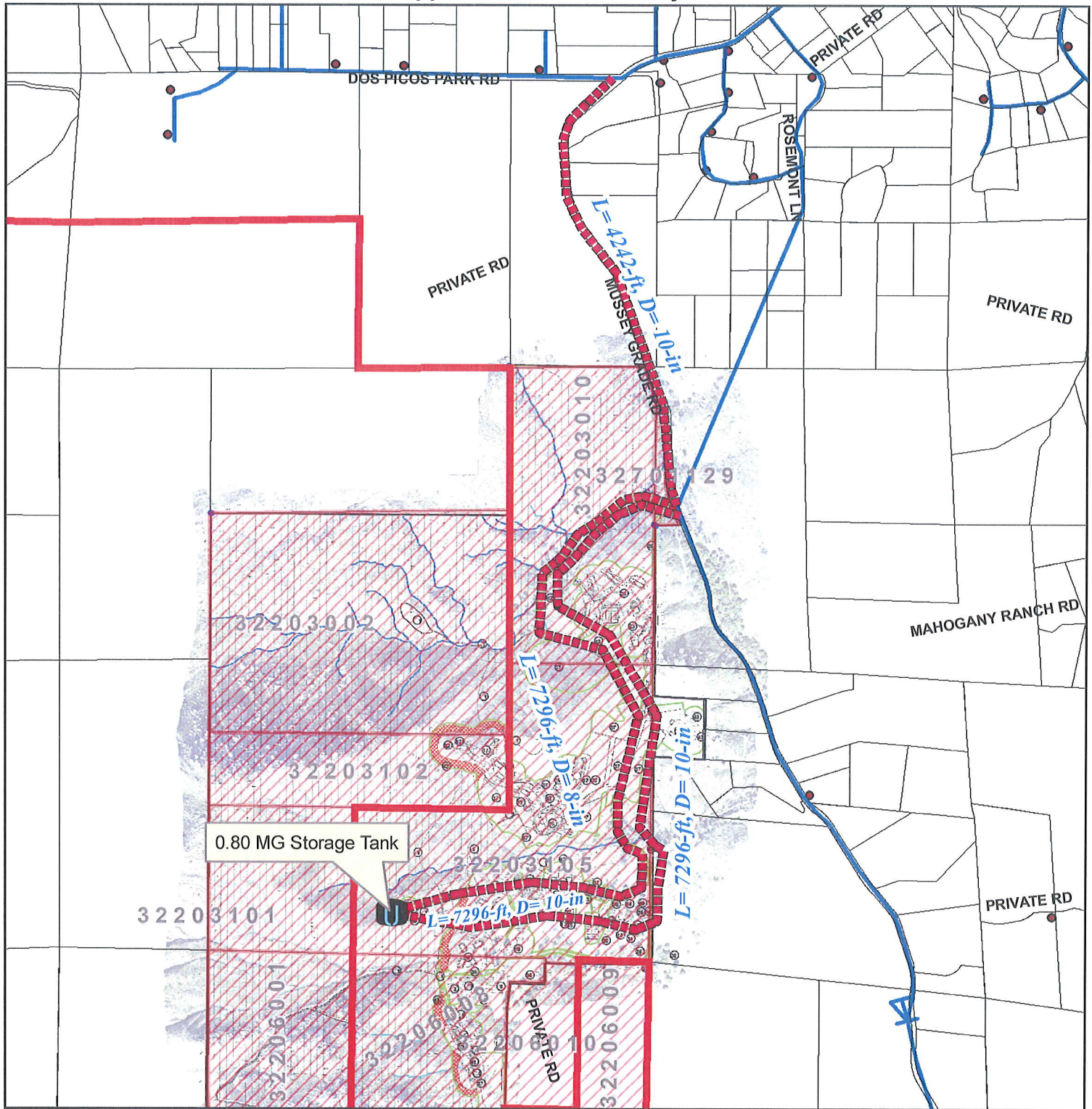


Legend

- Ultimate_Facilities
- Water System
- Fire_Hydrants
- All Water Meters
- RMWD Boundary
- Lien Contracts
- Reimbursement Agreements

0 1,000 2,000 4,000
 Feet

EXHIBIT E
Alternative 1
APN: 32203002, 10, 32203101, 02, 05, 32206001, 08, 09, 10,
32206103, 32701129 (806.62 acres)
Mussey Grade Road
Applicant: Salvation Army

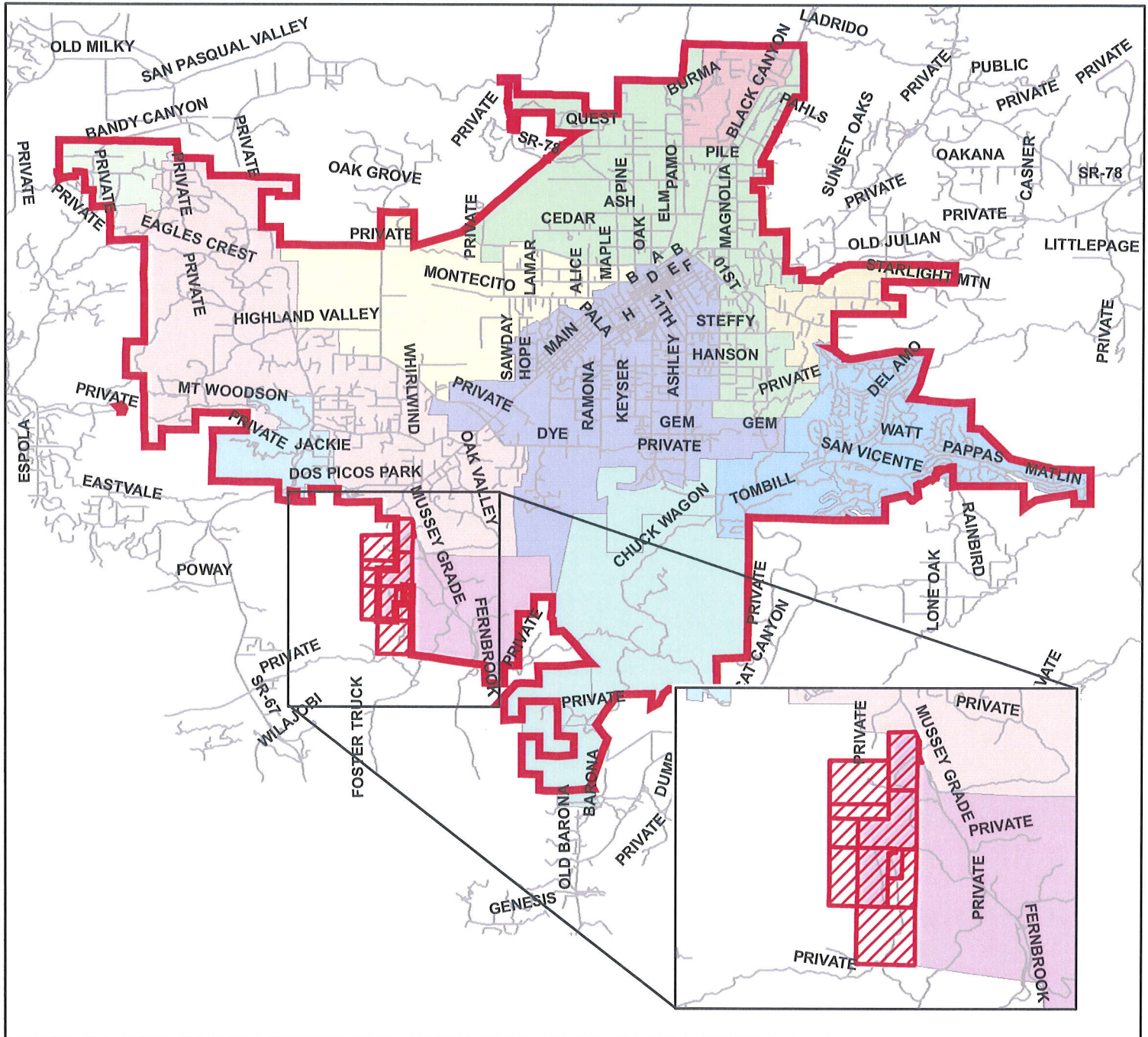


Legend

- Alternative_1
- Subject_Parcel
- RMWD Boundary
- Water System
- Fire_Hydrants

0 600 1,200 2,400
 Feet

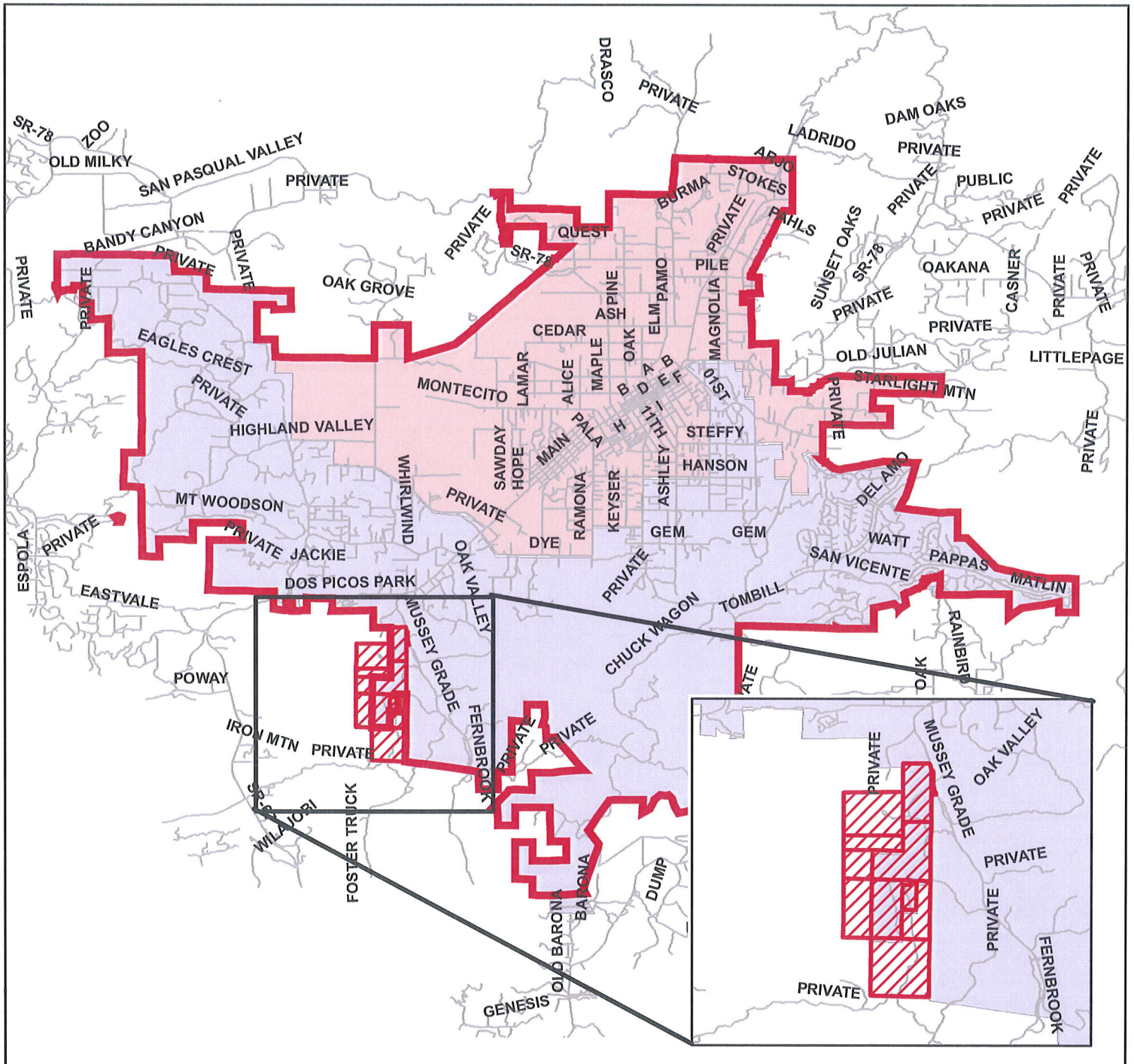
EXHIBIT F
Storage Zones
APN: 32203002, 10, 32203101, 02, 05, 32206001, 08, 09, 10,
32206103, 32701129 (806.62 acres)
Mussey Grade Road
Applicant: Salvation Army



Legend

SOURCETHM	DOWNTOWN	SDCE
1700 ZONE	ID 5	SNOW TANK
1980	MONTE VISTA	WOODSON
BARGAR	NOT SERVED	RMWD Boundary
BOULDER	SALVATION ARMY	Subject_Parcel

EXHIBIT G
Terminal Storage Zones
APN: 32203002, 10, 32203101, 02, 05, 32206001, 08, 09, 10,
32206103, 32701129 (806.62 acres)
Mussey Grade Road
Applicant: Salvation Army



Legend

- Subject_Parcel
- RMWD Boundary
- Mt_Woodson_Terminal_Storage_Boundary

Exhibit H

Alternative 1 – Cost Summary

Item	Quantity	Unit	Unit Cost	Cost
10-inch Main	4,242	LF	\$100	\$424,200
8-inch Main	7,296	LF	\$80	\$583,680
10-inch Main	7,296	LF	\$100	\$729,600

Item	Quantity	Unit	Unit Cost	Cost
0.80 MG Water Storage Tank	1	EA	\$1,200,000	\$1,200,000

Item	Quantity	Unit	Unit Cost	Cost
RMWD CIP Fees	102.7	EDUs	\$7,750	\$795,925
SDCWA CIP Fees	Unkown	EA	Unkown	Unkown
Total				\$2,725,525